

Title (en)

Methods and apparatus to make concentric filters composed of two or more materials.

Title (de)

Verfahren und Einrichtung zur Herstellung von konzentrischen Filtern aus zwei oder mehreren Materialien.

Title (fr)

Procédé et appareil de fabrication de filtres concentriques composés de deux ou plusieurs matériaux.

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Application

EP 94305683 A 19940801

Priority

US 10538393 A 19930812

Abstract (en)

The present invention is a modification to conventional tow processing machinery 2 and filter rod making machinery 6 which utilizes a top crimper 4 and a bottom crimper 4a alone or in combination, or a crimper and two sources of tow in combination to allow the machinery to be capable of producing different types of filters without major structural changes to the existing machinery. <IMAGE>

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Citation (search report)

- [X] US 3396061 A 19680806 - BROWNE COLIN L
- [X] EP 0474940 A1 19920318 - PHILIP MORRIS [US]
- [A] US 4355995 A 19821026 - BERGER RICHARD M
- [A] GB 793114 A 19580409 - PETER HENRY JULIAN BYK
- [A] GB 476746 A 19371215 - STEPHEN ALLEY, et al
- [A] CH 142428 A 19300930 - AIVAZ BORIS [HU]

Cited by

EP2449896A1; EP2449898A3; CN112998312A; EP3222158A1; EP2449895A3; EP0882412A3; KR20140107200A; EP2912959A1; WO2017021422A1; WO2014125096A1; EP2449896B1; EP2449898A2; EP2449895A2

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